

REMARKS

Claims 1-20 are currently pending and under consideration. The following discussion distinguishes the pending claims with respect to the references (Asia et al., US 6,376,052) cited in the previous Office Actions.

Amended **independent claim 1** recites a method of forming a core member for forming a composite, including, *inter alia*, removing at least a portion of the surface of a conductive coating on at least one face of a substrate to thereby allow a nub of conductive material to extend from a hole in the substrate above the surface of the substrate to thereby form a core in which the nub of the conductive material can be electrically joined face to face directly with another nub of the same conductive material from another core of another substrate through the nubs of the conductive material. Asia et al. does not teach or suggest forming a nub of such conductive material for direct face-to-face joining with another nub of the same conductive material from a different core member as recited in the subject claim. At most, Asia et al. discloses connecting a filler 5 to several intermediate layers and another material within a structure through the several intermediate layers. (See Figures 2 and 3).

Amended **claim 2**, which depends from claim 1, recites that the electrically conductive material is an electrically conductive adhesive that is heated to enhance a flow characteristics as it is dispensed in each of said openings. Support for this aspect is found on page 4, lines 14-16, of the subject application. Asia et al. does not teach or suggest this claimed aspect. At most, Asia et al. discloses applying heat after the filler 5 is in the through-holes 3 to fully cure the filler 5. (See column 19, lines 57-60, and column 32, lines 32-35).

Amended **claim 6**, which indirectly depends from claim 1, recites that the epoxy in each of the openings is partially cured to between about 20% and about 80% of complete cure after the epoxy is dispensed in each of the openings so that the epoxy adheres to another epoxy in another substrate. Support for such aspects can be found on page 4, line 22, through page 5, line 3. Asia et al. does not teach or suggest joining the filler 5 in the through-hole 3 of substrate 1 with another filler 5 in another through-hole 3 of another substrate 1 or partially curing the filler 5 as such for such joining.

Amended **claim 13**, which depends from claim 1, recites that the conductive coating includes a copper layer having a thickness of 35 microns or 70 microns. Support for such aspects can be found on page 4, lines 2-4. Asia et al. is silent regarding such claimed aspects.

Amended **claim 14**, which indirectly depends from claim 1, recites that the step of removing the at least the portion of the surface of the conductive coating on the at least one face includes thinning the at least the portion of the surface of the conductive coating on the at least one face to form a circuitized conductive surface on the at least one face. Support for such claimed aspect can be found on page 5, lines 14-15, page 6, lines 3-5, and Figures 5 and 6. Asia et al. does not teach or suggest these claimed aspects.

Amended **claim 17**, which depends from claim 1, recites that the method further includes fully curing the conductive material as the nubs are joined together to form a continuous electrical connection of the conductive material. Support for such claimed aspect can be found on page 7, lines 1-44, and Figure 8. Asia et al. does not contemplate these claimed aspects.

Amended **independent claim 19** recites a method of forming a printed wiring board, including, *inter alia*, dispensing an electrically conductive material in openings in a conductive coated substrate, removing the conductive coating, disposing the substrate between two differently circuitized members, and laminating the substrate and the two circuitized members together to form the printed wiring board. Support for these claimed aspects can be found on page 8, line 15, through page 9, line 13, and Figures 15 and 16. Asia et al. does not contemplate these claimed aspects.

Amended **independent claim 20** recites a method for forming a core member of a wiring board, including forming an opening through a dielectric substrate coated with copper, filling the opening with a silver filled thermosetting epoxy, partially curing the epoxy, etching the copper coating by cold cupric chloride etching to form an epoxy protrusion above the etched copper surfaces having a desired uniform height, and using a photolithographic process to form a circuit on the etched copper surface, wherein the epoxy protrusion provides a nub for joining the core member with another nub of another epoxy protrusion of a second core member. Asia et al. does not teach or suggest such claimed aspects.


Conclusion

All pending claims distinguish patentably and non-obviously over the prior art of record.
An early indication of allowability is earnestly solicited.

Respectfully submitted,
DRIGGS, HOGG & FRY CO., L.P.A.

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By: _____


Anthony M. Del Zoppo, III Reg. No. 51,606
CUSTOMER NO. 26681

AMD:cg